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NEW BOOKS

Plane Geometry Review. By MURRAY J. LEVENTHAL and M. WEINER. Globe Book Company, New York. Pp. 86.

This review outline contains a statement of the basal propositions of plane geometry, suggestions for the proof of these propositions, numerical exercises, and a large number of recent College Entrance and Regents examination questions.

Geometry Note Book. Globe Book Company, New York.

The use of such a perforated tablet will systematize written proofs of propositions and "originals," and save considerable time for both student and teacher.

Standardized Reasoning Tests in Arithmetic and How to Utilize Them. Cliff W. Stone, Teachers' College Contributions to Education, No. 83; second edition, revised and enlarged.

This manual furnishes complete directions for giving the Stone Reasoning Tests, and for scoring the papers. Standards are given, and one chapter is devoted to setting forth effective means of representing the scores. Another chapter is devoted to a consideration of the utilization of the results of the test in the improvement of teaching.

This publication should be of use in supervision, and in the teaching of the reasoning phases of arithmetic.

Réflexions sur la Métaphysique du Calcul Infinitésimal. By Lazaire Carnot. Gauthier-Villars et Cie., Paris, 1921, 2 vols. Vol. I, pp. viii + 118; vol II, pp. 106.

For those who are interested in the possibility of the introduction of the calculus into the senior high school and who feel that the pupil advances over somewhat the same route that the world has taken, these little paper-covered volumes are well worth reading. Indeed, those who teach the calculus in our colleges would not occupy their time amiss in finding how the subject stood at the close of the Napoleonic era, before Cauchy had made firm the foundations upon which the calculus has since rested. They will not find much assistance in the way of presenting the theory to their classes, but they will find a discussion of the philosophical principles which lie at the base of the discipline.

Lazare-Nicolas-Marguerite Carnot (1753-1823) was a man of great attainments. His early training gave him a substantial knowledge of the classics, of philosophy, and of mathematics. Like most young men of good family, in those days, he entered the army, and in the course of events he took a prominent part in the French Revolution, being honored by various political preferments. Apparently about the close of the old régime he wrote his *Réflexions* for in the first edition of the work "An V, (1797)" he says "Il y a quelques années que l'Auteur de ces Réflexions les a rédigées dans la forme où on les présente aujourd'hui." At the time of the publication of the essay he was too much occupied with his public duties to revise it, and so it appeared as a small volume of only eighty pages. During the Empire, however, he found time for writing, and so he published several noteworthy works upon modern geometry and revised and greatly extended the *Réflexions*, the second edition of the latter appearing in 1813. It is this second edition that is now republished in a series known as *Les Maîtres de la Pensée Scientifique* and issued at a price within the reach of all French scholars.

The present edition is particularly interesting to the student of mathematical history in that it shows the working of Carnot's mind in seeking to relieve the calculus of the doubts that had prevailed in many instances from the time that Dean (afterwards Bishop) Berkley published *The Analyst* in 1734. The *ment petite* as "la différence de deux grandeurs qui ont pour limite une meme grandeur et rien de plus." This was not satisfactory, even in 1797, and it was less satisfactory after the criticisms of his book had done with their task. Hence, in 1813, Carnot rewrote that part of the essay that follows page 20 of the original edition, and took the most important step that had been taken up to that time to make the theory rigidly precise. That he did not succeed to the extent that Cauchy did is not to criticise his efforts; it is simply to say that Cauchy could not have accomplished what he did if he had not had Carnot's work on which to build.

A word of thanks is due to M. Solovine, the editor of the series, and to the well-known publishing house of Gauthier-Villars et Cie, for rendering such classics available and for reproducing them with such fidelity to the original text. They appear at

only about 3 francs a volume, in paper covers,—about 25 cents at the present rate of exchange. Unfortunately, the price in New York is likely to be much higher, for some reason that book-buyers cannot comprehend but that importers seem to feel that they can justify in spite of the fact that the books are admitted duty free and that the postage is only nominal.

DAVID EUGENE SMITH.

Mémoire sur la Chaleur. By M. Lavoisier and de Laplace, Paris, Gauthier-Villars et Cie, 1920, pp. 78 + 2 plates.

This memoir originally appeared in the *Mémoires de l'Académie des Sciences*, in 1780, and is now republished in accord with the general plan of M. Solvine, the editor of the series "Les Maîtres de la Pensée Scientifique." This plan is to make available for French students, at a nominal price, some of the great scientific classics which have appeared in their language, but which are now out of print. This particular memoir was written by two of the best-known scientists living in France at the period of the Revolution and it represents the enthusiasm of young manhood. An Edinburgh scientist, Joseph Black, had already worked upon the theory of latent and specific heat and had devised various calorimetric methods. Laplace, then only thirty-one years old, and Lavoisier, six years his senior, took up the problem and, in this work, they gave the results of their experiments. They set forth new methods of measuring heat and applied these methods to the determination of the specific heat of various substances as related to that of water taken as a standard. They then considered the general theory of heat as based upon these observations.

The work is not one of special importance to the teacher of mathematics, but to the physicist it will be interesting and profitable reading.

DAVID EUGENE SMITH.